

REMARKS

35 USC §112 AND CLAIMS OBJECTIONS

Claims 1-14 are rejected under 35 USC §112, first paragraph, as failing to comply with the written description requirement. The Applicant reviewed claim 1 and amended the claim to replace "a plurality of" with "two", which addresses the Examiner's rejection and previous objections.

35 USC §103

Claims 1-14 are rejected under 35 USC §103(a), as being unpatentable over The Admitted Prior Art (Figure 1 of the Applicant's specification) in view of Akino et al. (JP Publication 08-296086).

Claims 1-14 are rejected under 35 USC §103(a), as being unpatentable over Akino et al. in view of The Admitted Prior Art.

The Applicant respectfully disagrees with both rejections.

Amended Claim 1 recites:

"A plating system comprising:

an elongated upper channel formed by two upper shields and an elongated lower channel formed by two lower shields, wherein each channel is separated by a gap between the upper and lower shields; and
a plating solution horizontal sparger comprising a series of inlets oriented to direct any plating solution flowing through the inlets directly into one and towards another of the upper and lower channels."

As pointed out in the Specification, an improved plating system 100 is shown in **Figure 2** which provides for improved metal distribution over a work piece 900. In the improved system 100, the vertical spargers (spargers 11 in **Figure 1**) found in prior art plating systems are eliminated and fluid 800 enters the chamber 120 through the bottom of the chamber with the bottom of the chamber acting as a horizontal sparger 110. By eliminating the vertical spargers, the distance D2 between the part being plated 900 and the shields 130 can be decreased (with a corresponding decrease in the distance D4 between the fields farming the sides of the channel).

As the Specification also specifically points out, the system of **Figure 2** may be obtained by modifying the system of **Figure 1** (a Technic Inc. MP 300 — and Applicant's Admitted Prior Art) in the following manner: (1) eliminating the tubular vertical solution spargers and replacing them with holes 111 fabricated in the lower plenum so that solution travels around the parts to be plated as a turbulent flow from the bottom of the parts to the tops, and not from the sides; (2) increasing the solution velocity; (3) moving the shields closer to the parts to be plated (cathodes); (4) incorporating part holding clamps sufficiently narrow so as to adequately hold the part while still permitting the claims and parts to move between the shields; and (5) incorporating a double rinsing and drying process where the plating/part holding fixture is rinsed and dried first, and the plated part and lower half of the fixture are subsequently rinsed and dried. These modifications to the Technic system render the claims of the current application patentable as not anticipated by Technic, because Technic cannot possibly anticipate the modifications disclosed in the current system and recited in the claims.

The Examiner then cites the Akino reference and takes a rather large leap as to what Akino is stating. The Examiner says:

"Since the plating electrolyte is introduced by the hydraulic nozzle of Akino et al. directly into the lower channel, the plating electrolyte is displaced from the lower channel to the upper channel as the plating electrolyte is continuously introduced into the plating tank."

Actually, the Applicants – after a fair reading of Akino – cannot find that characterization of the hydraulic nozzle, and in fact contend that Akino is using the nozzle for a completely different purpose – to introduce air into the chamber, which will introduce turbulence into the fluid already in the chamber. Specifically, Akino states:

“Further, in the vicinity of the current shielding plates 5 at both sides of the lower portion, a fluid nozzle 7 for fluidizing a plating solution 6 **by ejecting a fluid such as air** from between them is provided.” (emphasis added)

And then Akino states:

“...the plating solution 6 in the vicinity of the metallic strip 3 is sufficiently agitated with the fluid nozzle 7, whereby the primary current distribution is uniformized, and the uniformization of the plating thickness distribution is achieved.”

Note that the Akino reference does not state that the fluid nozzle 7 discharges the plating solution 6. This lack of disclosure is significant, because if the inventors in the Akino reference had intended to discharge plating solution, they would have stated so in the description of Figure 7. Instead, they refer to the fluid coming out of fluid nozzle 7 as “agitating” the plating solution 6, as shown in the second paragraph of the translated portions in your last letter. Claim 1 clearly recites that the inlets direct plating solution flowing through the inlets into the channels. That fact just isn't stated in the Akino reference.

The Applicant believes, after reviewing the Examiner's Answer, that the Examiner is merely assembling puzzle pieces to arrive at a whole "prior art reference", and the Examiner is also improperly deconstructing claim 1 of the present application to arrive at the goal the Examiner wishes to reach.

Therefore, Applicant's Admitted Prior Art, alone or in combination with Akino, cannot render unpatentable claim 1 of the present application, because one of ordinary

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skill in the art cannot possibly review the Admitted Prior Art or Akino on its face and, remove the vertical spargers, place horizontal spargers in the bottom of the chamber, direct any plating solution flowing through the inlets directly into one and towards another of the upper and lower channels and arrive at claim 1.

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REQUEST FOR ALLOWANCE

Claims 1-14 are pending in this application, and the Applicant respectfully requests that the Examiner reconsider all of the claims in light of the arguments presented and allow all current and pending claims.

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Respectfully submitted,

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